

CASE NO. 1:20CV168
State of MS
VS. People's Republic of
P-17 China
PLAINTIFF'S EXHIBIT etal
DATE _____ IDEN.
DATE 2-10-2025 EVID.
BY Karen Butta

Deputy Clerk

AO 386

ESTIMATES OF ECONOMIC COSTS OF COVID-19 IN MISSISSIPPI

February 2025

Sondra Collins, Ph.D.
Senior Economist

J. Corey Miller
State Economist



University Research Center
Mississippi Institutions of Higher Learning
3825 Ridgewood Road • Jackson, Mississippi

Estimates of Economic Costs of COVID-19 in Mississippi

The COVID-19 pandemic was an unprecedented situation for the United States and the world. Beyond the number of lives lost, essentially no aspect of society was untouched by the virus and its aftereffects. This report from the University Research Center (URC) attempts to quantify the economic damage rendered on the state of Mississippi by COVID-19.

Before detailing our estimates, we note some caveats. First, we determined only the damages incurred by the Mississippi economy directly resulting from COVID-19. That is, we do not incorporate the transfer payments from the federal government from the Coronavirus Aid, Relief, and Economic Security (CARES) Act or other legislation. Second, our estimates are based on calculations we could perform from available data and references to the work of others; we did not “guess.” While we make several assumptions, some of them strong, we make every effort to be as transparent as possible with our methodology.

Our approach to estimating the damages to the Mississippi economy caused by COVID-19 involves two major considerations. These are: 1) the deaths attributable to COVID-19, and 2) the costs associated with the loss of employment due to COVID-19.

The number of deaths in Mississippi attributable to COVID-19 is estimated at 11,857 according to the Mississippi Department of Health (MSDH 2024). This number is the sum across calendar years 2020, 2021, and 2022. While the value of a human life is in many ways immeasurable, from an economic standpoint a human life is an asset with a productive capacity that varies according to a multitude of factors. The statistical value of a human life is a concept used by government agencies and other organizations to conduct cost-benefit analyses of safety regulations and other proposed policy changes. We use this same concept to assess the economic value of lives lost in Mississippi attributable to COVID-19. The estimate of the statistical value of a human life for 2020 that we use is approximately \$10,000,000 (Gonzalez 2020).

Ideally, we would determine the remaining lifespan of each person in Mississippi who died because of COVID-19. However, because of the number of deaths occurred over a relatively short period, we are unable to make this determination. Alternatively, we use the estimated life expectancy from the Centers for Disease Control (Arias et al 2024). According to the CDC, the estimated lifespan of a Mississippi resident in 2021 was 70.9 years. We use this value for all deaths across the years 2020 to 2022.

In addition, we determined if COVID-19 was listed as the *underlying* or a *contributing* cause of death. URC assigned a greater value to the death if COVID-19 was considered the underlying cause of death than if COVID-19 was a contributing cause of death. According to the CDC, many causes of death can be listed as “contributing” regardless of how large or small was the role of the contribution.

We determine the value of human lives lost due to COVID-19 for a given year using the number of deaths according to the 10 age ranges provided by MSDH. We then take the midpoint of each age range. Then, we subtract this midpoint value from the life expectancy of 70.9, then divide this number by the life expectancy of 70.9 to get a discount rate for each age range. For age ranges above 70.9, we do not get a discount rate, as the values are negative. The discount rate for an age range is multiplied by \$10,000,000, the statistical value of a human life, which is then multiplied by the number of deaths in that age range for which COVID-19 was determined to be the underlying cause. For the number of deaths for which COVID-19 was a contributing cause, we divided the discounted value of one life in a particular age range by 2. This value was multiplied by the difference between the number of deaths where COVID-19 was the underlying cause and the number of deaths where COVID-19 was a contributing cause. These values are summed across age ranges for both deaths where COVID-19 was the underlying

cause and deaths where COVID-19 was a contributing factor to get the total statistical value of lives lost for a particular year. In 2020 this value was \$3,108,098,592; in 2021, \$5,847,746,479; and in 2022 this value was \$1,835,492,958. Our total estimate of the statistical value of lives lost in Mississippi due to COVID-19 from 2020 through 2022 is \$10,791,338,029.

Loss of employment due to COVID-19 is the second primary source of costs we estimate, as mentioned above. In March and April of 2020, Mississippi lost 148,700 jobs according to data from the U.S. Bureau of Labor Statistics (BLS 2024). Every major sector in Mississippi experienced a decrease in employment in March and April of 2020. Total payroll employment in the state did not surpass the February 2020 level until February 2022; employment in some sectors remains below its February 2020 level as of October 2024. We estimate the total loss of wages in the state following the jobs lost in March and April of 2020. We use the average wage in each sector in the state in February 2020 according to BLS to estimate wages lost by sector. Our assumption is each worker who lost a job earned the average hourly wage in his or her particular industry and worked 40 hours a week for 52 weeks out of the year. This information is used to calculate a monthly wage by industry, from which we subtract unemployment benefits provided by the federal government. During the COVID-19 state of emergency, federal unemployment benefits were available from February 2020 through June 2021. We do not subtract any state unemployment benefits. As noted above, total nonfarm employment in Mississippi did not return to its February 2020 level until February 2022; however, employment in some sectors recovered more quickly. URC estimates the wages lost by industry from March 2020 through January 2022 or until employment in that sector returned to its February 2020 level, whichever came first. URC estimates total lost wages in the state from March 2020 through January 2022 equaled \$1,380,313,373. This value has not been adjusted for inflation.

Table 1. Estimated Mississippi nominal wages lost from COVID-19, Mar. 2020 – Jan. 2022.

Sector	Total wages lost
Mining and Logging	\$24,471,720
Construction	\$24,541,920
Manufacturing	\$203,465,600
Trade	\$35,855,333
Information	\$37,663,460
Financial Activities	\$58,250,733
Professional and Business Services	\$52,213,580
Education and Health Services	\$347,390,747
Leisure and Hospitality	\$21,684,520
Other Services	\$95,032,027
Government	\$479,743,733
Total Nonfarm	\$1,380,313,373

Source: U.S. Bureau of Labor Statistics. URC calculations.

In summary, this brief report estimates the costs of COVID-19 to the Mississippi economy from 2020 through 2022. We estimate losses from two primary sources: loss of life and loss of wages. According to the Mississippi Department of Health, 11,857 deaths in the state in 2020, 2021, and 2022 were attributable to COVID-19. URC estimates the total statistical value of these lives lost at \$10,791,338,029. The U.S. Bureau of Labor Statistics estimates Mississippi lost 148,700 jobs in March and April of 2020. Based on wage estimates across sectors for Mississippi from this agency, we calculate the value of wages lost in the state from March 2020 to January 2022 at \$1,380,313,373. Neither of these estimates are adjusted for inflation. URC estimates the total economic cost of COVID-19 in the

state of Mississippi at \$12,171,651,402. URC believes this calculation represents a conservative estimate of the total costs of COVID-19 to the state's economy, as we do not attempt to assess any damages associated with mental anguish and emotional distress due to COVID-19. We also do not estimate any costs associated with so-called "long COVID"—those individuals who contracted COVID-19 and recovered but have been unable to resume normal activities. We do not believe sufficient data exists to make any determination about the costs associated with such cases.

References

- Arias, E., Xu, J., Tejada-Vera, B., and Bastian, B. 2024. "U.S. State Life Tables, 2021." *National Vital Statistics Reports* 73(7). Available at: <https://www.cdc.gov/nchs/data/nvsr/nvsr73/nvsr73-07.pdf>.
- Gonzalez, S. 2020. "How Government Agencies Determine the Dollar Value of Human Life." National Public Radio, *All Things Considered*. Available at: <https://www.npr.org/2020/04/23/843310123/how-government-agencies-determine-the-dollar-value-of-human-life>.
- Mississippi State Department of Health, Office of Vital Records and Public Health Statistics. 2024. "COVID-19 Provisional Mississippi Death Counts." Available at: <https://msdh.ms.gov/page/resources/10682.pdf>.
- U.S. Bureau of Labor Statistics, Current Employment Statistics. 2024. "State and Metro Area Employment, Hours, & Earnings." Available at: <https://www.bls.gov/sae/>.

Addendum

We note that in *State of Missouri v. People's Republic of China et al.*, 1:20-cv-0099-SNLJ Doc. 87-1 page 7, Haslag presents a methodology for calculating the percentage of damages caused by COVID-19 attributable to the hoarding of personal protective equipment (PPE) by the People's Republic of China.

Haslag writes, "We start with two facts: (i) 70 percent of the supply of PPE coming from China and (ii) PPE reducing infections by 50 percent. What we can infer from these two data points is that the incidence rate could have been as much as 35 percent lower if PPE hoarding had not occurred. The 35 percent represents the impact that PPE hoarding has on infections."

Based on Haslag's conclusion, we can designate a portion of our estimate of the costs of COVID-19 to the Mississippi economy as attributable to the hoarding of PPE by the People's Republic of China. Our estimate of the value of wages lost in Mississippi from March 2020 to January 2022 is \$1,380,313,373. Following Haslag's finding, we determine that of these lost wages, \$483,109,681 is due to the hoarding of PPE by the People's Republic of China. Similarly, URC estimates that the total statistical value of the 11,857 lives lost in Mississippi in 2020, 2021, and 2022 because of COVID-19 is \$10,791,338,029. Again, following Haslag, we determine that \$3,776,968,310 of this amount is due to the hoarding of PPE by the People's Republic of China.

In conclusion, based on the findings of Haslag, URC determines that of our estimated total economic cost of COVID-19 in the state of Mississippi of \$12,171,651,402, approximately \$4,260,077,991 resulted from the hoarding of PPE by the People's Republic of China.